

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Official Action dated January 4, 2007. In view of the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 5-6 and 11-15 are under consideration in this application. Claim 10 is being cancelled without prejudice or disclaimer. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Prior Art Rejections

Claims 5-6 and 10-12 were rejected under 35 USC § 103(a) as being unpatentable over US Patent No. 5,608,417 to de Vall (hereinafter "de Vall") in view of US Patent No. 6,522,308 to Mathieu (hereinafter "Mathieu") and a book entitled "Teach Yourself Electricity and Electronics, 2nd Edition". The above rejection has been carefully considered, but is most respectfully traversed.

A contactless identification (for example, the embodiment depicted in Figs. 5-6; pp. 6-7, 11-13), as recited in claim 5, comprises: an antenna coil 1 formed by a metallic vortex pattern on a base (cancelled claim 10), a first capacitor 7, and an IC chip 7. One terminal of the IC chip 3 connects to the antenna coil 1 through the first capacitor 7, and the other terminal of the IC chip 3 connects to the antenna coil 1 such that the antenna coil 1, the first capacitor 7 and the IC chip 3 are connected *in series*. The first capacitor 7 has a capacitance *C1* (*<Cin*) smaller than an input capacitance *Cin* 3A of the IC chip 3. A reactance of the antenna, the capacitance of the first capacitor 7 and the input capacitance of the IC chip 3 determine a resonant frequency of the contactless identification.

The capacitance *C1* of said first capacitor 7 complementing to said input capacitance *Cin* 3A of said IC chip 3 to provide a desired resonant capacitance (*"even if the IC chip has a large input capacitance, the capacitor connected in series with the IC chip can make the overall resonant capacitance equivalently smaller"* p. 6, last line to p. 7, line 1).

The invention solves a problem in the prior art by connecting the antenna coil 1, the first capacitor 7 and the IC chip 3 *in series*. In the prior art, while a certain degree of

manufacturing accuracy can be maintained for the inductance of the antenna coil 1, by forming the capacitor 2 as a metallic pattern or as a discrete part, the capacitance between connection terminals of the IC 3 and the antenna coil 1, and the capacitance 3A of the IC chip 3 itself inevitably experience variations in a range of 20 % to 30 % due to a variety of factors in the manufacturing. The variations directly affect the resonant frequency as well as the power reception efficiency and communication distance (p. 4, lines 3-13).

According to the invention, the capacitance C1 of the capacitor 7 is smaller than the input capacitance Cin 3A of the IC chip 3. The invention allows the inductance of the antenna coil 1 and the capacitance C1 of the capacitor 7 to predominantly act on the resonant frequency, which inexpensively and significantly reduces the influence on the resonant frequency exerted by variations in the input capacitance 3A of the IC chip 3 due to certain manufacturing factors (p. 6, line 17 to p. 7, line 12; p. 11, line 15 to p. 12, line 9). For example, *“even if the [input] capacitance of the IC chip varies by $\pm 30\%$, the influence on the resonant frequency is largely reduced to approximately $\pm 1\%$ ”* (p. 13, lines 23-25).

Applicants contend that the cited references fail to teach or suggest such a “first capacitor 7 (1) connecting between an IC chip 3 and said antenna coil 1 *in series*, and (2) having a capacitance C1 smaller than an input capacitance Cin 3A of said IC chip 3” such that a reactance of the antenna, the capacitance of the first capacitor 7 and the input capacitance of the IC chip 3 determine a resonant frequency of the contactless identification according to the invention.

Contrary to the Examiner’s comments in the outstanding Office Action (p.4, lines 13-14) that de Vall shows that either a parallel or series resonator can be used, de Vall merely shows “simple” (col. 4, line 28) parallel and series resonators (Figs. 3a-b) in order to explain that “the distributed inductance and capacitance results in multiple alternating parallel and series resonant frequencies, with progressively decreasing Qs as the frequency increases” (col. 4, lines 24-35), rather an “actually used” parallel or series resonator. de Vall shows an actually used parallel resonator in Fig. 2 as a preferred embodiment.

Mathieu's Fig. 5 merely shows a parallel connection of a capacitor Cs2 and a chip 50, but not an in-series arrangement. As such, Mathieu implicitly prefers the in-parallel arrangement.

“Teach Yourself Electricity and Electronics, 2nd Edition” generally discusses in-series and in-parallel connection, but not in the context of RFID.

Applicants respectfully contend that one skilled in the art would not be motivated to combine de Vall with Mathieu in the ways suggested by the Examiner. There are numerous ways to combine Mathieu with de Vall. The most intuitive combination would be to directly incorporate Mathieu's parallel resonator into de Vall's resonator system to benefit from adding an input capacitance thereby keeping the overall capacitance the same, rather than selecting bits and pieces from each reference, and then combining those bits and pieces using knowledge or hindsight gleaned from the disclosure of the present invention as a guide to support the combination. "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." *Panduit Corp. v. Dennison Mfg. Co.*, 227 USPQ 337, 344 (Fed. Cir. 1985). See *Para-Ordinance Mfg. Inc. v. SGS Importers Intl., Inc.*, 73 F.3d 1085, 37 USPQ2d 1237 (Fed. Cir. 1995).

Although "[t]he submission of evidence that a new product possesses unexpected properties does not necessarily require a conclusion that the claimed invention is nonobvious. *In re Payne*, 606 F.2d 303, 203 USPQ 245 (CCPA 1979). See the discussion of latent properties and additional advantages in MPEP § 2145," the unexpected properties as asserted in the Declaration of One Skilled In The Art under 37 C.F.R. §1.132 (e.g., to increase the reactance of the contactless identification and providing sufficient antenna power to support a sufficient communication distance) which is being filed concurrently herewith, were unknown and non-inherent functions in view of de Vall or Mathieu.

Applicants further contend that the mere fact that one of skill in the art could rearrange Mathieu to meet the terms of the claims is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for one skilled in the art to provide the unexpected properties in the context of RFID, so as "to increase the reactance of the contactless identification and providing sufficient antenna power to support a sufficient communication distance", without the benefit of appellant's specification, to make the necessary changes in the reference device (*Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984) MPEP§2144.04 (VI) (C)).

Applicants contend that the cited references and their combinations all fail to teach or disclose each and every feature of the present invention as recited in at least independent claim 5. As such, the present invention as now claimed as a whole is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

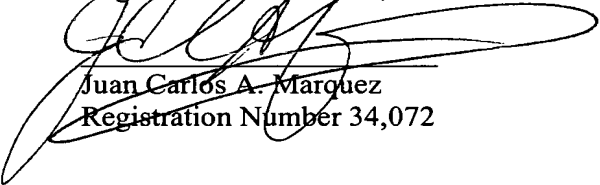
Conclusion

In view of all the above, clear and distinct differences as discussed exist between the present invention as now claimed and the prior art reference upon which the rejections in the Office Action rely, Applicants respectfully contend that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

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